Fig. 1

PRIOR ART

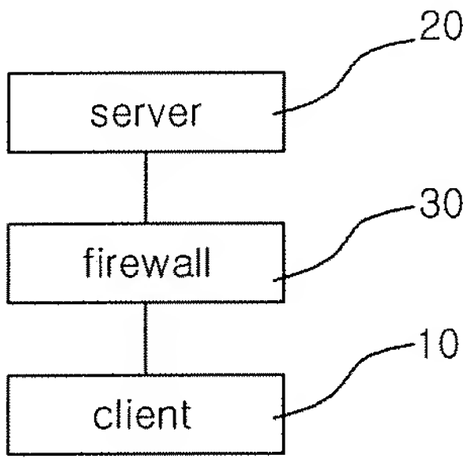


Fig. 2

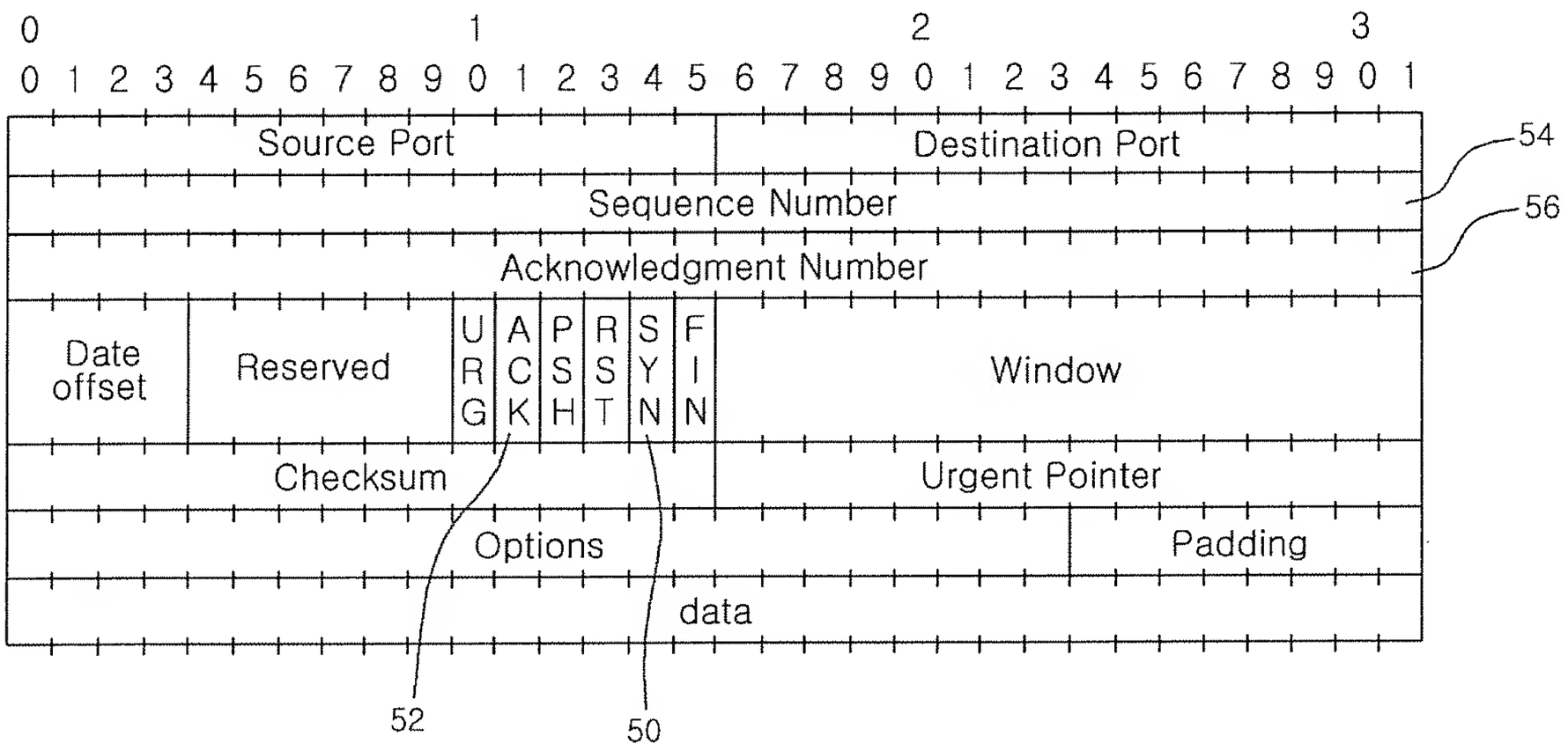
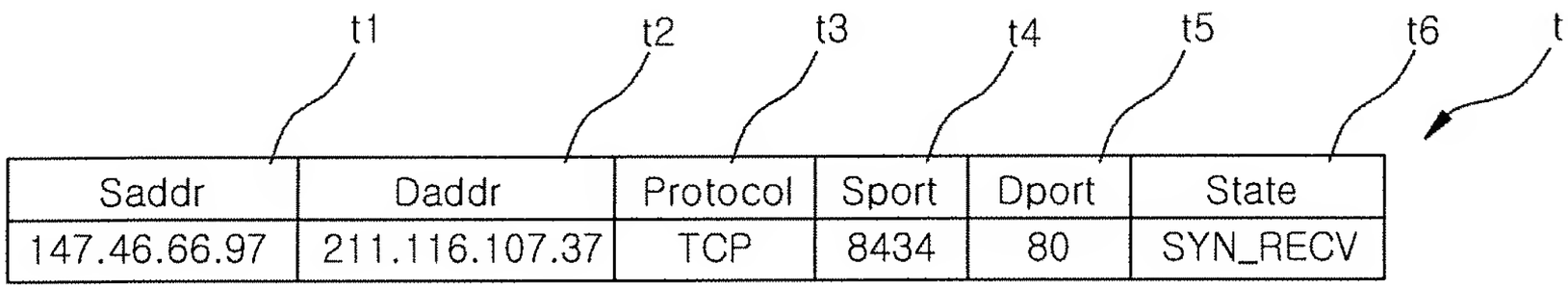


Fig. 3

PRIOR ART



Saddr	Daddr	Protocol	Sport	Dport	State
147.46.66.97	211.116.107.37	TCP	8434	80	SYN_RECV

Fig. 4

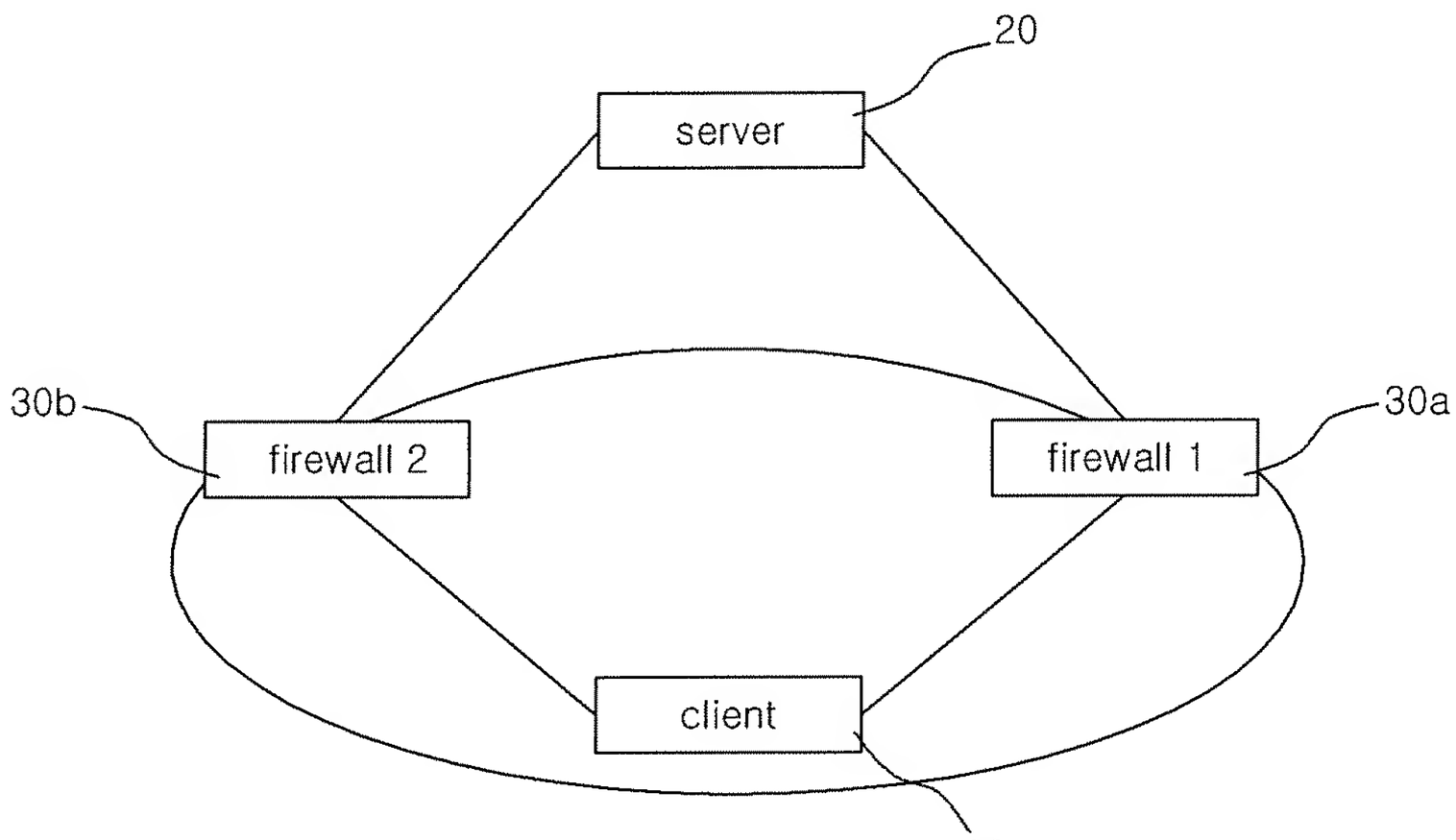


Fig. 5

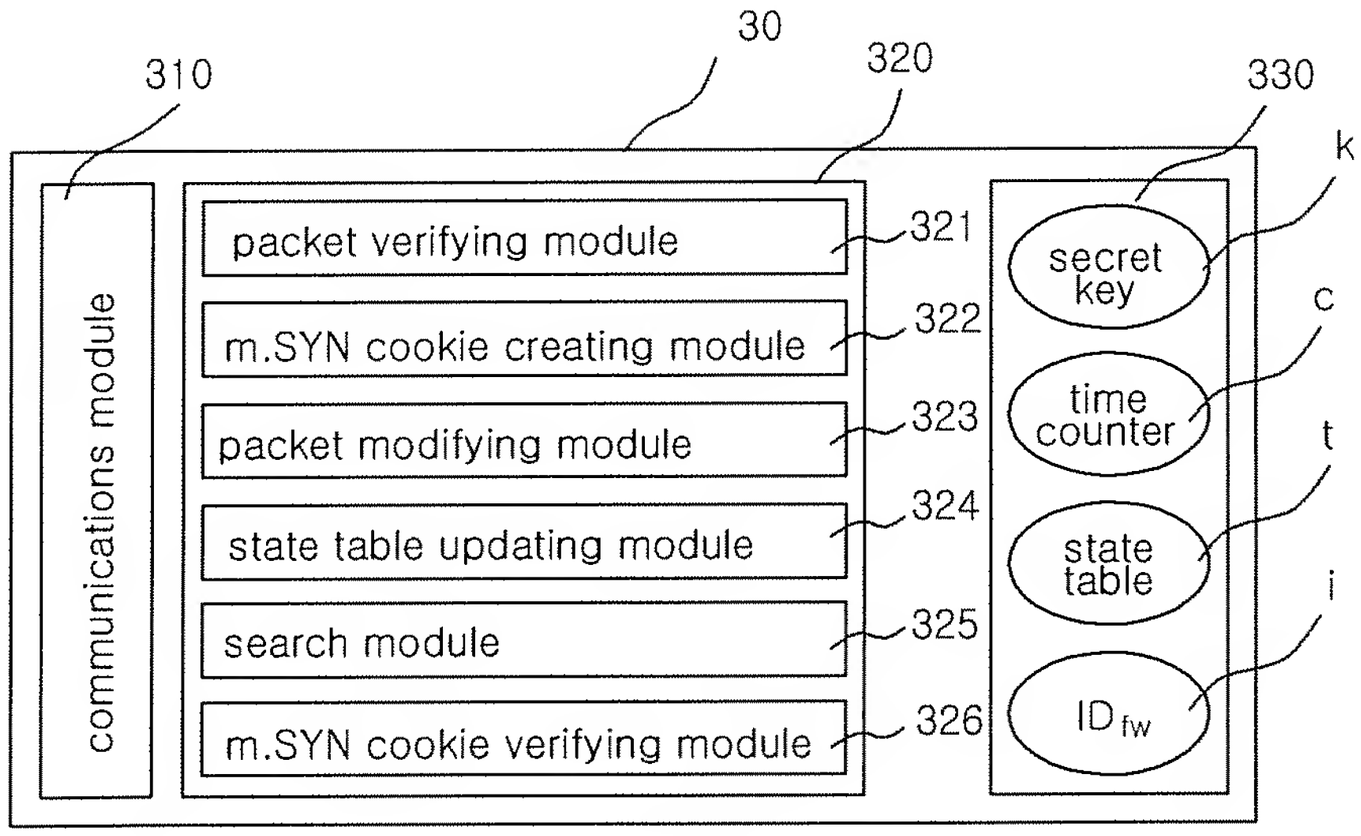

30
310
320
330
k
c
t
i
communications module
packet verifying module
321
m.SYN cookie creating module
322
packet modifying module
323
state table updating module
324
search module
325
m.SYN cookie verifying module
326
secret key
time counter
state table
ID fw

Fig. 6

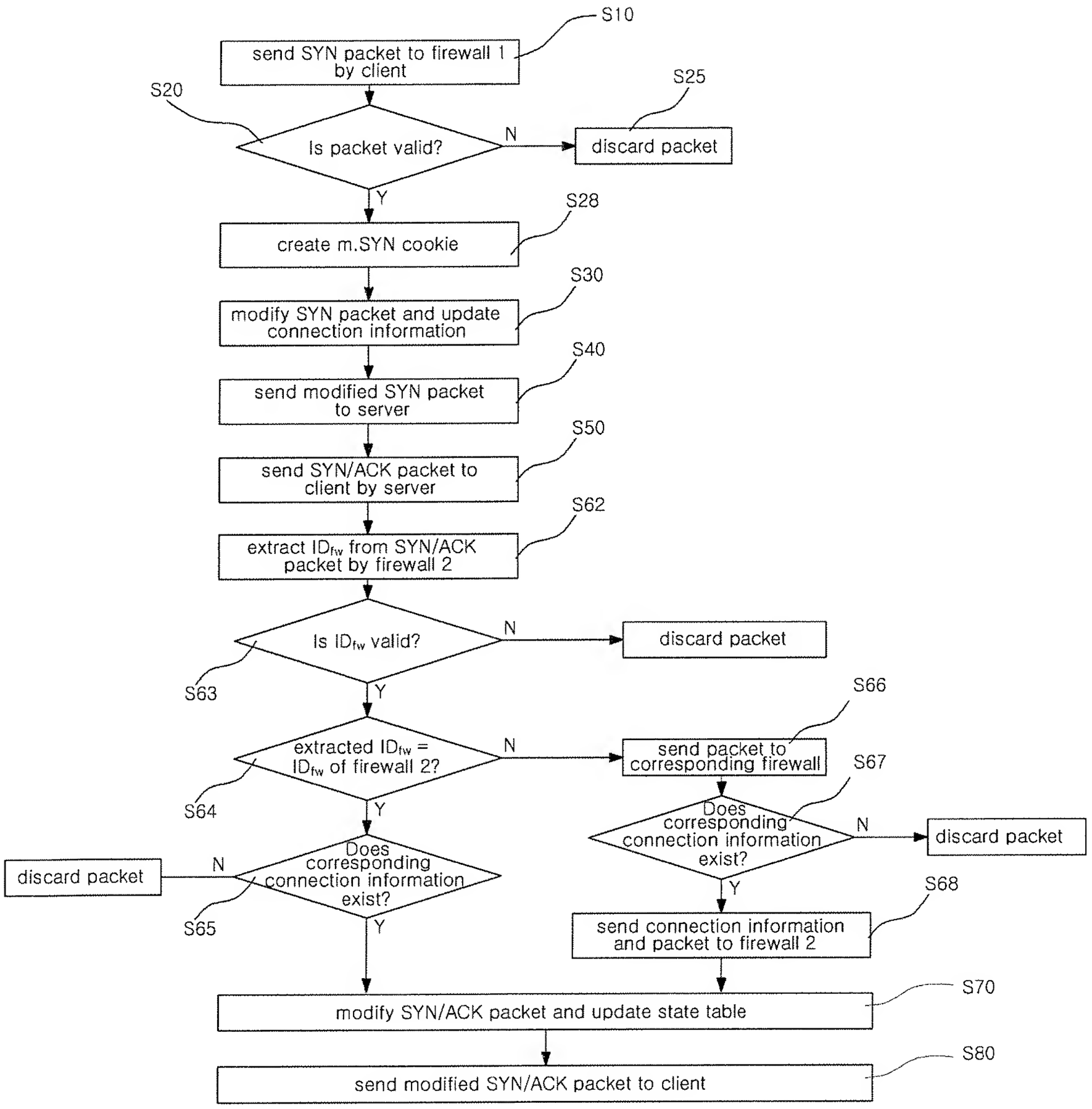

S10
send SYN packet to firewall 1 by client
S20
Is packet valid?
N
S25
discard packet
Y
S28
create m.SYN cookie
S30
modify SYN packet and update connection information
S40
send modified SYN packet to server
S50
send SYN/ACK packet to client by server
S62
extract ID_{fw} from SYN/ACK packet by firewall 2
Is ID_{fw} valid?
N
discard packet
S63
Y
extracted ID_{fw} = ID_{fw} of firewall 2?
N
S66
send packet to corresponding firewall
S64
Y
Does corresponding connection information exist?
N
S67
discard packet
Y
S68
send connection information and packet to firewall 2
discard packet
N
Does corresponding connection information exist?
S65
Y
S70
modify SYN/ACK packet and update state table
S80
send modified SYN/ACK packet to client

Fig. 7

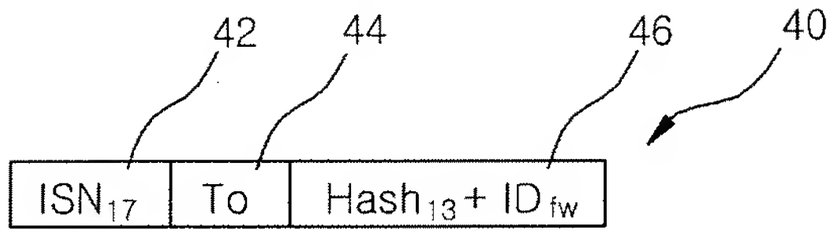


Fig. 8

t1 Saddr	t2 Daddr	t3 Protocol	t4 Sport	t5 Dport	t6 State	t7 m.SYN cookie-ISN_c
147.46.66.97	211.116.107.37	TCP	8434	80	SYN_RECV	